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ABSTRACT

Based on the experience of the past, current viewpoints, and opinions about the future as conceived by the Committee on Vocational Education Research and Development (COVERD), this paper explains a framework for considering alternative policy options and discusses the relationships among the social environment, status and trends in vocational education, and federal policy options for conducting Vocational Education Research and Development (VERD). Policy options for federally supported VERD are profiled on the dimensions of control, funding, performers, continuity, standards, functions, program areas, occupational focus, and populations, institutions, and demographic settings served. Included also are illustrative generalizations and a tabled schematic display of a number of general propositions about the relation between federal policy options and their outcomes for the quality of VERD findings and products, their effect on building capacity, the utility of findings and products, and the consequent political support for VERD. Appended is a schematic model for Project Baseline that provides for an analysis of both VERD processes and impacts. The model is described in a cumulative series of five figures using a combination of actual and hypothetical data. (NJ)

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A FRAMEWORK

for developing

ALTERNATIVE SCENARIOS FOR VOCATIONAL EDUCATION RESEARCH AND DEVELOPMENT

By

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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2

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PREFACE

Federal policy for vocational education research and development in the coming decade ought to be built upon the experience and wisdom of the past, the most thoughtful current viewpoints, and the best informed expectations about the future. This paper consists of a framework for writing alternative scenarios for Federal policy and is intended to draw out COVERD's best thinking about the past, present, and future.

A scenario is a plan in which actors, actions, and results are projected full-scale so that the plan can be studied and evaluated before it is undertaken. Alternative scenarios permit the evaluation of competing plans and the choice of the best.

A given scenario is a particular combination of actors and actions to produce given results. If the results are selected in advance, the actors and actions can be chosen accordingly.

Writing scenarios requires knowing the pool of potential actors, the repertoire of potential actions, the set of potential results, and the relations among actors, actions, and results. It also requires knowing the social, political, economic, and professional/technical environment in which the scenario is to be played out. Any writer's knowledge of all those factors is incomplete and uncertain. He can construct reasonable and diverse scenarios but he cannot judge them fully. In contrast, COVERD consists of leaders and scholars whose combined experience and wisdom encompass the best available knowledge of actors, actions, and results. The judgments COVERD makes should of course be not only technical but also philosophical--that is, based not only on what can be accomplished but on what is worth accomplishing.

THE CONTEXT FOR VERD

VERD is nested in and influenced by two surrounding contexts:

1. The larger social, political, economic, and professional/technical environment in which both vocational education and VERD take place.

2. The smaller, more immediate environment of vocational education to which VERD is addressed.

The ways in which VERD is affected by those two contexts is suggested schematically on the following page and is discussed briefly later. The relationships are of course hopefully interactive, with VERD influencing vocational education programs and practices and through them their effects on students and through them their effects on the surrounding society, which in turn will influence VERD through future legislation.

The two contexts limit what VERD can accomplish (and the credit it can claim) in at least three significant ways:

1. VERD is only one means for improving vocational education.

2. VERD's influence on students and society is indirect, delayed, and uncertain.

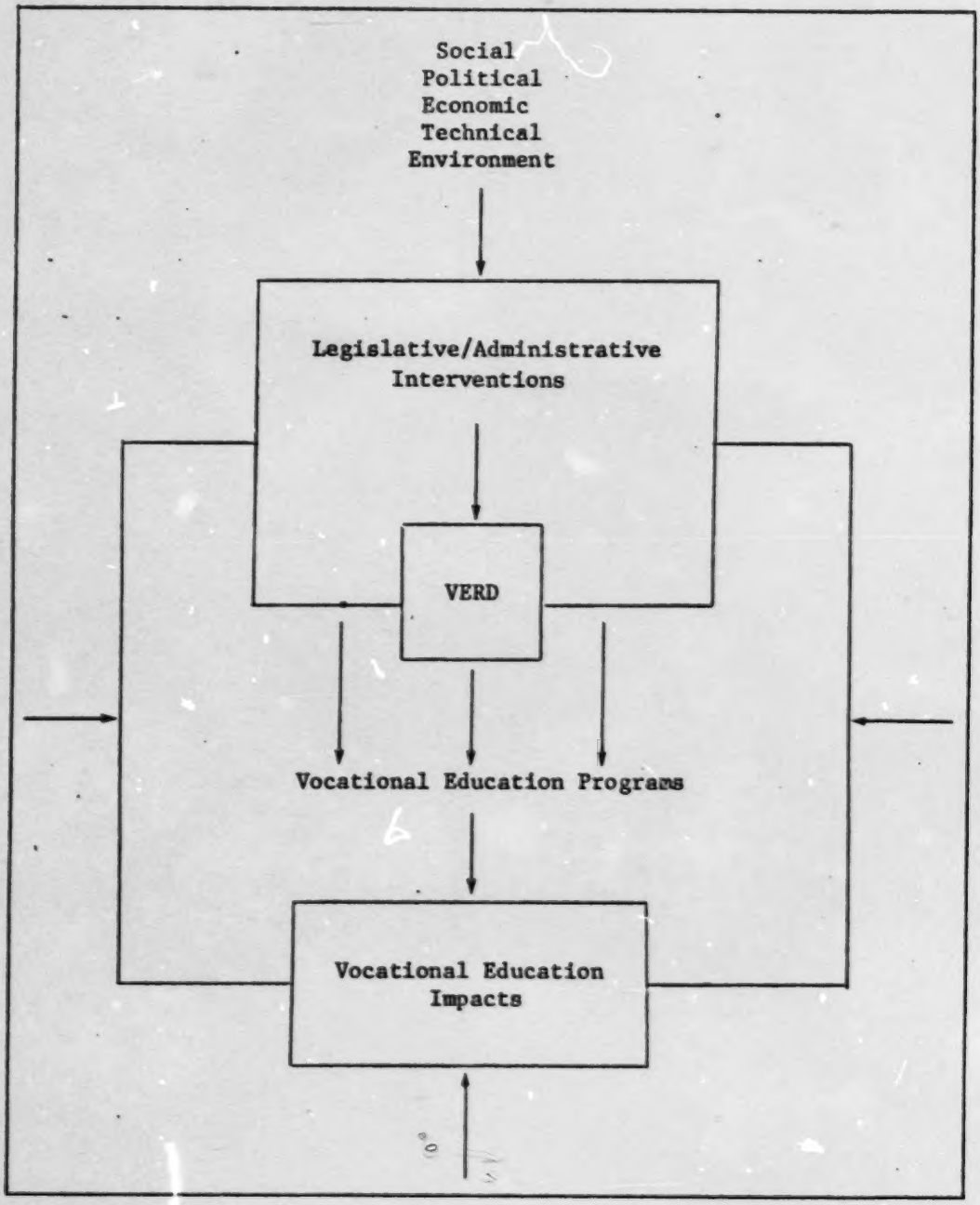
3. VERD cannot claim sole credit for its ultimate effects but must share that credit with vocational education practitioners and with forces in the larger society--in uncertain and perhaps contentious proportions.

The first limitation deserves further comment.

VERD as One Means--in Competition with Others--for Improving Vocational Education

VERD itself, taken as a whole, can be understood as one possible way to intervene in current vocational education programs and practices. But there are other possible interventions as well. VERD must compete

THE CONTEXT FOR VERD



with them to become the chosen intervention.

The possible classes of intervention include:

1. Intensifying current programs and practices.
2. Extending current programs and practices.
3. Increasing personnel competence in using current programs and practices.
4. Evaluating current programs and practices.
5. Redesigning current programs and practices.

1. Intensifying. Some interventions are addressed to intensifying vocational education by using current processes more fully, as by reducing class size, extending hours of instruction, and acquiring more books and equipment of the kind now used.

2. Extending. Some interventions are addressed to extending vocational education to new kinds of populations, new kinds of institutional environments, new geographic locations, and so on.

3. Increasing personnel competence. Some interventions are addressed to increasing the skill of teachers and administrators in carrying out current programs and practices so that they will be more effective.

4. Evaluating. Some interventions offer to improve vocational education by making more accurate, more comprehensive appraisals to guide the intensifying, extending, personnel training, or redesigning of vocational education.

5. Redesigning. VERD is intended to redesign vocational education, redesign it in tiny segments or redesign it as a whole. But some would argue that VERD is not the unique means even for redesign. They would argue that the creative inventiveness of practicing teachers and

administrators and the novel products of field-wise textbook writers and equipment designers are as good as or better than VERD.

Thus winning support for VERD means winning two arguments:

1. The argument that vocational education needs to be redesigned (in tiny segments or as a whole) as much as it needs to be intensified or extended or evaluated or have practitioners' skills upgraded through training.

2. The argument that systematic inquiry and careful product engineering are as good a means of redesigning vocational education as creativity, trial and error, and intuitive redesign by practitioners, book writers, and those who create equipment and materials.

COVERD can be assured that there will be advocates for the opposite view.

A longer discussion of the larger context in which VERD must operate appears in Appendix A, which the reader should turn to after at this point. That appendix is an outgrowth of the fact that an occasion arose during the writing of this paper to apply the general thinking to Project Baseline--a national vocational education data bank which needed guidance in how to make a better display and analysis of its information. What is most worth noting about the discussion in Appendix A is that VERD is mentioned only occasionally as a possible intervention, always in competition with other interventions, and always in a complex interplay of other forces within vocational education and in the larger society surrounding it.

A FRAMEWORK FOR THINKING ABOUT VERD

This paper briefly presents a framework for writing scenarios for the future in the expectation that COVERD can use it as a stage upon which to arrange alternative sets of actors, actions, and results.

The framework itself rests upon certain assumptions about COVERD's viewpoints:

1. COVERD is concerned about Federally-stimulated/supported/subsidized but not necessarily Federally-conducted VERD dealing with elementary, secondary, and sub-baccalaureate postsecondary education.

2. COVERD is interested in the near term: 1976-1985.

3. COVERD believes that VERD itself should be improved in quality and that the VERD system should be improved in capacity.

4. COVERD believes that VERD and its related functions should lead to improved operating programs and practices in vocational education.

5. COVERD believes that Federal policy can be deliberately designed to produce selected outcomes--that such outcomes are neither random nor beyond the control of Federal policy.

Overview of the Framework

The framework consists of several parts: (see page 7)

1. A location for descriptions of the social, political, economic, and professional/technical environment in the society which may/will create problems and opportunities meriting the attention of VERD and establish a climate of support/non-support for VERD.

2. A location for descriptions of status and trends in vocational education which may/will create problems and opportunities meriting the attention of VERD and establish a climate of support/non-support for VERD.

A FRAMEWORK FOR THINKING ABOUT VERD

Social Political Economic Professional/ Technical Environment	Vocational Education Environment	Federal R & D Policy Options
(1) →	(2) →	→ (3)
a) Current status:	a) Current status:	IF
		a) Control
		b) Funding
		c) Performers
		d) Continuity
		e) Standards
		f) Functions
		g) Program Area
		h) Population served
b) Possible future events:	b) Possible future events:	i) Institutions served
		j) Demographic settings served
		k) Occupational focus
		THEN
		Outcomes
		Quality (4) / Building Capacity (5) / Utility (6) / Political Support (7)

3. A location for descriptions of Federal policy options as to the control, funding, performers, continuity, standards, functions, program areas, and populations to be served by VERD. Choices among the options will determine the four outcomes of VERD as listed below.

- Locations for descriptions of four valuable outcomes of VERD:

4. Quality of findings or products emerging from VERD.

5. Building capacity for improved VERD in the future.

6. Utility of findings or products emerging from VERD.

7. Political support for VERD.

The relationship among the parts is this: The environment for VERD (1, 2) influences the choice among policy options (3) which, when adopted, produces certain outcomes (4, 5, 6, 7).

Explicating the Framework

The entries in the sections of the framework--and, indeed, the sections themselves--are tentative and require COVERD's critique and modification. Those entries are explicated below.

1. Social Environment

A complex set of social, political, economic, and professional/technical conditions and forces are at work in the external environment surrounding VERD. These are treated in the framework as uncontrollable variables beyond the influence of any Federal policy COVERD might conceive for VERD. They set the environment, limit the options for intervening in that environment through VERD, influence or establish the social problems vocational education must solve, and may reinforce or diminish the out-

comes of any Federal policy for VERD.

A satisfactory description of that environment would include not only its current status but the possible or likely future events that might/would change that status.

The elements to be noted include social movements such as the rise of minorities through legislative enactment or public conscience, shifting values among students such as the current wave of interest among post-secondary students in obtaining preparation for employment, the distribution of political power and the values of those in office, economic conditions in general and Federal/state/local patterns of spending for vocational education in particular, levels of employment and unemployment, and current levels of technical accomplishment in other professions including research methodology and management science.

The general circumstances in the mid-1970s appear to be negative for VERD, given the current political and economic climate and the widely-noted disenchantment with research and development, particularly in social programs. The atmosphere is further dampened by the current slackening of social concern for disadvantaged minorities. And the loss of considerable control by HEW over vocational education for marginally-employed adults to the U. S. Department of Labor. Meanwhile, other forces which may further weaken the environment for VERD are growing. For example, the steady rise in the political power of local and state teachers unions has implications for VERD inasmuch as the unions could become adversaries in the current period of scarce resources for local and state governments.

But there are some positive forces at work in the environment as well. These include nationwide concern about unemployment, the heavy flow of

adults into postsecondary job-related schooling, and the special interest of President Ford in the relation between education and work.

2. Vocational Education

Within vocational education itself, things are also in the saddle although perhaps not moving at full gallop. Perhaps the most important of these are three taking place outside the traditional domain of vocational education: career education beginning at kindergarten, the shift toward occupational training in four-year and graduate institutions of higher education, and as mentioned above, the stream of adults returning to school for occupational training or re-training.

The strong nationwide interest in career education appears to be continuing. Depending upon one's definition, career education can be understood as running from the cradle to the grave--preceding, paralleling, following, and enveloping vocational education. It seems inevitable that the continuation of the career education movement will change the character of vocational education, perhaps giving it a distinctive new relationship with academic and general education, and significantly changing the problems and opportunities VERD will face in the future.

The steady growth in the interest of college students in obtaining occupational training from their four-year and graduate institutions has received wide comment. If what is happening in California is a harbinger of what will happen nationwide eventually, as it has been in education in recent years, it is worth noting that 60% of the bachelors degrees and 85% of the masters degrees granted by the 19-campus California State University system are in occupational fields and the trend is continuing in that

direction. Given the higher proportion of the postsecondary population choosing higher education and given the high proportion seeking occupational training during their higher education, it seems entirely likely that the need and the demand for vocational education in the secondary and sub-baccalaureate postsecondary schools will somehow be affected. If so, VERD will be presented with new problems and opportunities.

The continuing movement of women into the labor market, the increasing number of women who combine a career at home with a career in paid employment, the increasing number of women who enter the labor market after their children have grown, the continued erosion of unskilled and semi-skilled jobs with the resulting unemployment, and the increasing mid-career restlessness of workers across the entire spectrum of occupational levels is bringing more and more adults into school. What they come for most often is occupational training. As this trend continues, it seems certain to affect vocational education and to pose new problems and opportunties for VERD.

What is most significant about these three trends for VERD is that they tend to require the redesign of vocational education, either in small segments or as a whole, to accomodate the new circumstances. This is the role for which VERD is best suited and, it can be argued, uniquely suited.

There are other trends as well, well known to COVERD, including part-time enrollment, the desire for education and training at non-standard times in non-standard places, shifting attitudes toward degrees and credentials, and so on.

In short, while the climate for the support and expansion of VERD

itself does not seem to be especially favorable because of factors in the social environment at present, there seem to be movements in the society at large and within vocational education itself which may soon give VERD a distinctly new and expanded set of problems and opportunities.

The remainder of this paper is divided into sections corresponding to the options and outcomes columns of the framework on page 7.

3. Federal Policy Options for Conducting VERD

The policy options for Federally-supported VERD can be profiled on a set of dimensions such as those listed below. COVERD's task is to select the specific option that optimizes the outcomes it values. An illustrative set of generalizations about the relations between those options and their outcomes in the form of quality, capacity, utility, and political support for VERD appear later.

a) Control - The control over VERD can be profiled on a number of dimensions, including these:

   1) Federal vs. state vs. local

   2) Congressional vs. Administrative

   3) Centralized vs. decentralized

   4) Government officials vs. advisory bodies

b) Funding - The funding of VERD can be profiled over such dimensions as these: (control and funding mechanisms often come in pairs and should be selected accordingly).

   1) High level vs. medium level vs. low level

   2) Discretionary funding vs. formula funding

   3) Competitive vs. sole source

   4) Grants vs. contracts

   5) Matching vs. non-matching

c) Performers - Those chosen and funded to perform VERD can come from a wide range of possibilities:

1) Social scientists vs. professional educators

2) General educators vs. vocational educators

3) Scientist/specialist educators vs. practitioner educators

4) States vs. localities

5) Individuals vs. institutions

6) Schools vs. universities

7) Independent profit vs. independent nonprofit firms

8) Specialized R&D organizations concentrating on VERD vs. those not concentrating on VERD

d) Continuity - VERD can be directed to accomplish immediate or more remote objectives. Decisions about control, funding, and performers are related to that choice:

1) Short term vs. long term

2) Project vs. program

3) Specific activity vs. general function

e) Standards - Qualifications and performance standards can be set along with selection/monitoring procedures to enforce them:

1) High institutional capability vs. low institutional capability

2) High personnel qualifications vs. low personnel qualifications

3) High technical standards vs. low technical standards

f) Functions - A number of different R&D functions can be selected for possible emphasis:

1) Research vs.

2) Development vs.

3) Dissemination/demonstration

g) Program area - Various aspects of vocational education may be singled out for attention or all may be investigated simultaneously:

1) Administration vs.

2) Financing vs.

3) Personnel vs.

4) Curriculum vs.

5) Instruction vs.

6) Guidance and counseling vs.

7) Placement vs.

8) Facilities

h) Population served - Forces in the external environment may favor alleviating the problems of one population vs. another at any given point in time. Professional breakthroughs may also influence timing:

1) Elementary vs. secondary vs. postsecondary vs. adult

2) Majority vs. minorities

3) Advantaged vs. disadvantaged

4) Handicapped vs. normal vs. gifted

i) Institutions served - Different institutional settings can be selected as the targets for VERD:

1) Public vs. private vs. proprietary

2) Day school vs. residential

j) Demographic settings served - Different demographic settings can be selected as the targets for VERD:

1) Rural vs. suburban vs. urban

2) High income vs. low income

3) High employment vs. low employment

k) Occupational focus - Diverse occupational levels and clusters might be chosen for VERD's attention:

1) White collar vs. blue collar

2) All occupational clusters vs. selected occupational clusters

3) Traditional occupations vs. new and emerging occupations

(4.) Quality of Findings or Products Emerging from VERD

The term "quality" is used in this discussion to denote the intellectual, scientific, heuristic, theoretical, exemplary, or related value of the immediate results of VERD: that is, new research findings or newly-developed products. These tend to be the values held by R & D performers themselves in judging their own work and that of others. Such standards for the inherent quality of the product itself--or what might be called its intellectual utility--must be distinguished from the social significance (particularly the immediate social significance) and practical utility to vocational educational practitioners. Social significance and utility are discussed later. COVERD's task is to choose policy options that will asure that VERD results have the desired quality.

a) Intellectual/scientific significance - meeting standards of R & D performers

1) High vs. medium vs. low

(5.) Building Capacity for Improved VERD in the Future

It is possible to sponsor and support VERD in such a way that the capacity of VERD performers to carry out similar functions in the future is increased. For example, VERD can be carried out in institutional settings and with staffing patterns that result in training promising young researchers and developers. Conversely, it is possible to sponsor and support VERD in such a way that capacity is reduced. For example, a policy of supporting only short-term projects conducted under narrow specifications written by the funding agency is likely to reduce institutional capacity--particularly in universities--for VERD over the long run. COVERD's task is to recommend policies that will influence capacity for future VERD in desired directions.

a) Increase in number of R & D performers

   1) High vs. low

b) Contribution to technical skills of R & D performers

   1) High vs. low

c) Effect on linkages among R & D performers

   1) Major vs. Minor

d) Effect on linkages between R & D performers and practitioners

   1) Major vs. minor

e) Dispersion of effects

   1) Limited vs. widespread adoption

f) Duration of benefits

   1) Short term vs. long term

(6.) Utility of Findings or Products Emerging from VERD

Apart from the intrinsic "quality" of VERD results, as discussed earlier, there is the matter of the social significance and practical usefulness of VERD results. It can be argued that the distinction is false, that quality VERD will have utility and that there is no utility in VERD results if they lack quality. Nevertheless, the distinction is a matter of common discourse among those seeking and those granting support for VERD. Moreover, it does seem that the distinction between quality and utility holds true at least on the time dimension: that high quality VERD results may have eventual but not immediate utility, while moderate quality VERD may have immediate utility but lack lasting value. COVERD's task is to determine the level of social significance and usefulness to practitioners that VERD ought to set as its target and choose among policy options accordingly.

a) Social significance - Potential social value if implemented

   1) High vs. medium vs. low

b) Usefulness to practitioners - Immediate practical impact on vocational education programs

   1) Limited vs. widespread adoption

   2) Minor vs. major improvement

   3) Short-term vs. long-term benefits

(7.) Political Support for VERD

Favorable attitudes toward VERD must be generated and these attitudes must be translated into legislative votes and administrative endorsement if VERD is to win and maintain financial support. The individuals, groups, and agencies with actual or potential political power who are or may become interested in VERD include those listed below. COVERD's task is to decide from which sources to seek political support for VERD and then to select from the earlier list of Federal policy options the particular combinations that will appeal to and merit the support of the designated sources.

a) Profession - There is potential support from within the profession itself for VERD which can be converted into political activity. That activity will be more or less successful depending upon the size, skills, and genuine interest of the group in having VERD performed:

1) Individuals vs. associations vs. institutions

b) Governments - Local, state, and Federal officials have access to political power and can marshall it on behalf of VERD if so motivated:

1) Federal vs. state vs. local

2) General government vs. education government

3) General education government vs. vocational educational government

4) Government officials vs. advisory bodies

c) Publics - There are of course many publics which might be aroused on behalf of VERD. They include:

1) General public vs.

2) Special publics such as:

a - Employers
b - Unions
c - Parents
d - Students

THE RELATION BETWEEN OPTIONS AND OUTCOMES

The following table is a schematic display of a number of general propositions about the relation between Federal research and development policy options and their outcomes for the quality of VERD findings or products, their effect on building capacity for future VERD, the utility of VERD findings or products, and the consequent political support for VERD.

The policy options are explicated in some detail to assist COVERD in debating among them. The list of policy options is incomplete, but sufficiently detailed to stimulate COVERD to create additional options.

The outcomes are not explicated in detail in the table, but--in the interest of avoiding overwhelming complexity--each set of outcomes is "averaged". That is, the general effect of each policy option on the quality, capacity, utility, and political support with respect to VERD is shown but the specific effect of each policy option is not shown. For example, the fact that a given policy option may generate high political support from professionals but low political support from the general public is not shown. Instead, the general effect of that policy option on overall political support from all groups is shown.

It is impossible to display in any such table the full range of policy options and the full range of specific outcomes. The actual matrix of options and outcomes in real life is doubtless enormous and extremely complex. The individual members of COVERD doubtless have individual "maps" of that complexity--as well as a diverse set of general propositions about the relations between options and outcomes.

Presumably COVERD constitutes a collective experience and mind which contains the truest available map of the real world.

Hopefully, the deliberate compression of outcomes in the table will simplify COVERD's thinking task without misleading COVERD about the size and complexity of the real world it wants to influence by selecting policy options for research and development.

Missing from the table are the first two columns shown in the Framework on page 7. While not shown, the forces at work in the larger society and within vocational education itself create a real-life environment in which the VERD policy options chosen by COVERD will strive for impact.

THE RELATION BETWEEN OPTIONS AND OUTCOMES

IF → Federal R & D Policy Options (3)	THEN OUTCOMES											
	Quality (4)			Building Capacity (5)			Utility (6)			Political Support (7)		
	H	M	L	H	M	L	H	M	L	H	M	L
a) CONTROL												
1) Federal vs.	✓			✓					✓			✓
state vs.		✓			✓			✓			✓	
local			✓			✓	✓			✓		
2) Congressional vs.			✓			✓	✓			✓		
administrative	✓				✓			✓				✓
3) Centralized vs.	✓			✓					✓			✓
decentralized			✓		✓		✓			✓		
4) Government officials vs.	✓			✓					✓			✓
advisory bodies			✓			✓	✓			✓		
b) FUNDING												
1) High level vs.	✓			✓			✓			✓		
medium level vs.		✓			✓			✓			✓	
low level			✓			✓			✓			✓
2) Discretionary funding vs.	✓				✓			✓				✓
formula funding			✓			✓	✓			✓		
3) Competitive vs.		✓			✓		✓					✓
sole source	✓			✓			✓				✓	
4) Grants vs.	✓			✓				✓			✓	
contracts		✓			✓		✓					✓

THE RELATION BETWEEN OPTIONS AND OUTCOMES (continued)

IF → Federal R & D Policy Options (3)	THEN OUTCOMES											
	Quality (4)			Building Capacity (5)			Utility (6)			Political Support (7)		
	H	M	L	H	M	L	H	M	L	H	M	L
5) Matching vs.		✓		✓			✓				✓	
non-matching			✓			✓			✓	✓		
c) PERFORMERS												
1) Social scientists vs.	✓				✓			✓				✓
professional educators		✓		✓			✓				✓	
2) General educators vs.	✓				✓			✓			✓	
vocational educators			✓		✓		✓			✓		
3) Scientist/specialist educators vs.	✓			✓					✓			✓
practitioner educators			✓			✓	✓			✓		
4) States vs.		✓				✓		✓		✓		
localities			✓			✓	✓				✓	
5) Individuals vs.	✓				✓			✓			✓	
institutions		✓		✓			✓			✓		
6) Schools vs.			✓			✓	✓			✓		
universities	✓			✓				✓				✓
7) Independent profit vs.		✓			✓		✓					✓
independent non-profit firms		✓			✓			✓				✓
8) *			✓		✓		✓			✓		
**	✓					✓		✓				✓

* Specialized R&D organizations concentrating on VERD vs.
**those not concentrating on VERD

THE RELATION BETWEEN OPTIONS AND OUTCOMES

IF → Federal R & D Policy Options (3)	THEN OUTCOMES											
	Quality (4)			Building Capacity (5)			Utility (6)			Political Support (7)		
	H	M	L	H	M	L	H	M	L	H	M	L
d) CONTINUITY 1) Short term vs.			✓			✓	✓					✓
long term	✓			✓				✓			✓	
2) Project vs.			✓			✓	✓					✓
program	✓			✓				✓			✓	
3) Specific activity vs.		✓				✓	✓					✓
general function	✓			✓				✓			✓	
e) STANDARDS 1) *	✓			✓				✓			✓	
**			✓		✓			✓			✓	
2) High personnel qualifications vs.	✓			✓				✓			✓	
low personnel qualifications			✓		✓			✓			✓	
3) High technical standards vs.	✓			✓				✓			✓	
low technical standards			✓			✓		✓		✓		
f) FUNCTIONS 1) Research vs.		✓			✓				✓			✓
2) Development vs.		✓			✓			✓			✓	
3) Dissemination/ demonstration		✓			✓		✓			✓		
g) PROGRAM AREA 1) Administration vs.		✓			✓			✓			✓	
2) Financing vs.		✓			✓		✓			✓		

* High institutional capability vs.
**low institutional capability

THE RELATION BETWEEN OPTIONS AND OUTCOMES

IF → Federal R & D Policy Options (3)	THEN OUTCOMES											
	Quality (4)			Building Capacity (5)			Utility (6)			Political Support (7)		
	H	M	L	H	M	L	H	M	L	H	M	L
3) Personnel vs.		✓			✓		✓				✓	
4) Curriculum vs.		✓			✓		✓			✓		
5) Instruction vs.		✓			✓		✓			✓		
6) Guidance and counseling vs.		✓			✓			✓			✓	
7) Placement vs.		✓			✓		✓			✓		
8) Facilities		✓			✓			✓				✓
h) POPULATION SERVED		✓			✓				✓			✓
1) *		✓			✓		✓			✓		
		✓			✓		✓			✓		
**		✓			✓		✓				✓	
2) Majority vs.		✓			✓		✓			✓		
minorities		✓			✓			✓			✓	
3) Advantaged vs.		✓			✓			✓				✓
disadvantaged		✓			✓			✓		✓		
4) Handicapped vs.		✓			✓		✓			✓		
normal vs.		✓			✓		✓			✓		
gifted		✓			✓				✓			✓
i) INSTITUTIONS SERVED												
1) Public vs.		✓			✓			✓		✓		
private vs.		✓			✓			✓			✓	
proprietary		✓			✓			✓				✓

* Elementary vs. secondary vs.
**Postsecondary vs. adult

THE RELATION BETWEEN OPTIONS AND OUTCOMES

IF → Federal R & D Policy Options (3)	THEN OUTCOMES											
	Quality (4)			Building Capacity (5)			Utility (6)			Political Support (7)		
	H	M	L	H	M	L	H	M	L	H	M	L
2) Day school vs.		✓			✓		✓			✓		
residential		✓			✓			✓			✓	
j) DEMOGRAPHIC SETTINGS SERVED 1) Rural vs.		✓			✓				✓			✓
suburban vs.		✓			✓			✓			✓	
urban		✓			✓		✓			✓		
2) High income vs.		✓			✓				✓		✓	
low income		✓			✓		✓			✓		
3) High employment vs.		✓			✓			✓			✓	
low employment		✓			✓		✓			✓		
k) OCCUPATIONAL FOCUS 1) White collar vs.		✓			✓			✓			✓	
blue collar		✓			✓			✓		✓		
2) All occupational clusters vs.		✓			✓			✓			✓	
selected occupational clusters		✓			✓			✓		✓		
3) Traditional occupations vs.		✓			✓		✓			✓		
new and emerging occupations		✓			✓				✓		✓	

APPENDIX A

A MODEL FOR PROJECT BASELINE

This is a very simple schematic model to explain how Project Baseline might think about the analysis and presentation of its current data and data it could gather in the future.

Inasmuch as the model provides for the analysis of both vocational education processes and the vocational education impacts, the distinction between the two should be made clear at this point. The two terms are employed from time to time in the later discussion.

Vocational education processes* are all those expenditures, training programs, specific courses, instructional techniques, schedules, personnel, materials, equipment, and facilities which together make up the institutional framework for conducting vocational education. The processes are the means for producing certain impacts on individuals or on society.

Vocational education impacts are the outcomes of vocational education, its results, its effects on individuals and society. For the individual, these include successful entry into and continuation in employment, advancement, earnings, job satisfaction, self-respect, and personal happiness. For the society, these include a supply of trained manpower to match the demands of the labor market, a high rate of employment, a

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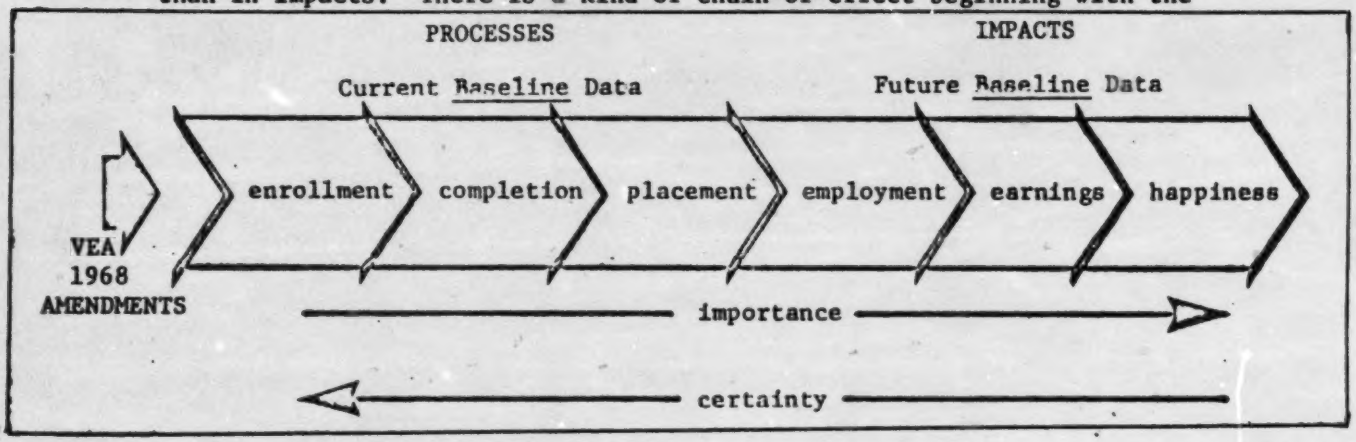
*The term processes is used in this study to embrace what are sometimes designated by the two terms inputs and processes. Economists often use the term inputs to mean gross resource allocations (e.g., expenditures) in distinction to the operational processes purchased with those gross resources. As the study proceeds, we may introduce such a distinction ourselves.

low volume of welfare payments, economically efficient production of goods and services, economic growth, and social stability. If vocational education processes are the means, vocational education impacts are the ends.

Presumably, when Congress enacted the VEA 1968 Amendments, it intended first to produce changes in vocational education processes and second to produce changes in vocational education impacts. We can think of changing the processes as the immediate objective and changing the impacts as the ultimate objective. Thus it is possible to judge the success of the Amendments by finding whether they have changed the processes and/or by finding whether they have changed the impacts. Presumably, Congress is most interested in its ultimate objective, changing the impacts of vocational education. The problem is that while the impacts are more important, the processes are more certain. That is, the VEA 1968 Amendments are more likely to make a direct and immediate change in processes than in impacts. There is a kind of chain-of-effect beginning with the



enactment of the Amendments and ending with happiness for individuals and stability for the society. The further we move across the chain from the law to its ultimate effects, the more likely that outside factors in the

surrounding environment will intervene between the law and its intended impact. This makes it more difficult to credit the law with high impact or blame the law for low impact. In short, as indicated in the sketch, while moving across the chain to the right lets us measure what is more important, moving across the chain to the left lets us measure with greater certainty that the law produced what we find.

As the sketch indicates, processes themselves can have a cause-and-effect relationship with each other and so can impacts. Enrollment can result in completing a program; holding a job results in earnings; and so on.

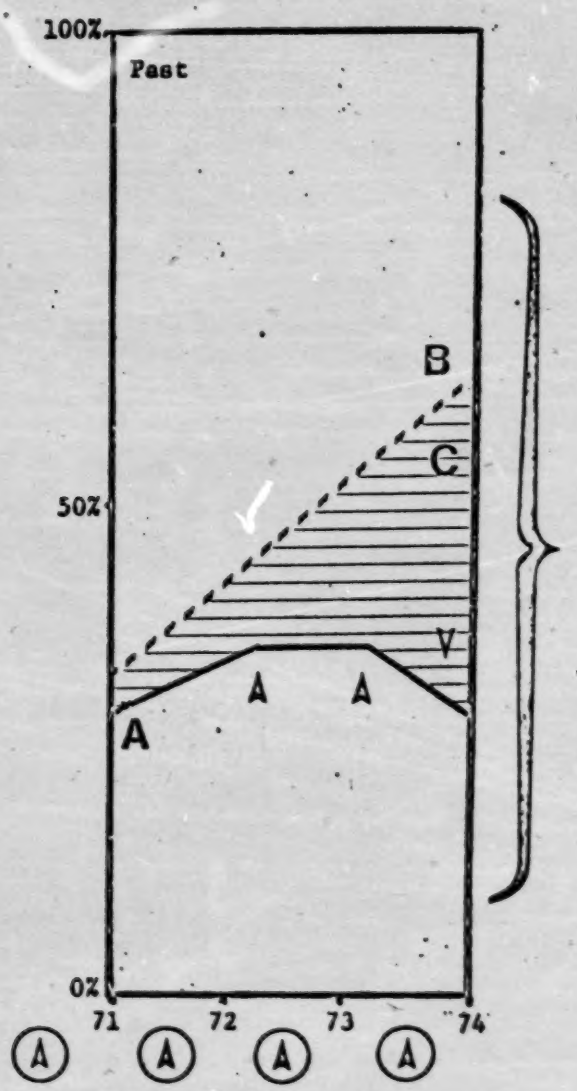
Description of the Model

The model is described in a cumulative series of five figures using a combination of actual and hypothetical data.

Figure 1 shows that each individual variable to be analyzed will be displayed on a panel representing general factors in the socio-economic and the political environment which may have influenced vocational education processes and impacts during the years 1971 through 1974. The descriptions of these general factors are the backdrop for interpreting what vocational education has accomplished in the past.

Figure 1

Expected Results and Actual Results



General factors in the socio-economic and political environment which may have influenced vocational education processes and impacts

Line *A* - *Actual Project Baseline data on results of VEA 1968 Amendments*
Line *B* - *Expected results of VEA 1968 Amendments*
Area *C* - *Discrepancy between actual results and expected results*
Point A - *Specific factors in the socio-economic and political environment which may have influenced vocational education processes and impacts*
Interventions (A) - *Vocational education legislation*

Superimposed on the gray panel of general factors are selected specific factors in the socio-economic and political environment which may have influenced vocational education processes and impacts in a rather direct fashion.

The model also provides for the identification and display of vocational education legislation (including annual appropriations) which were intended to have a direct effect on vocational education.

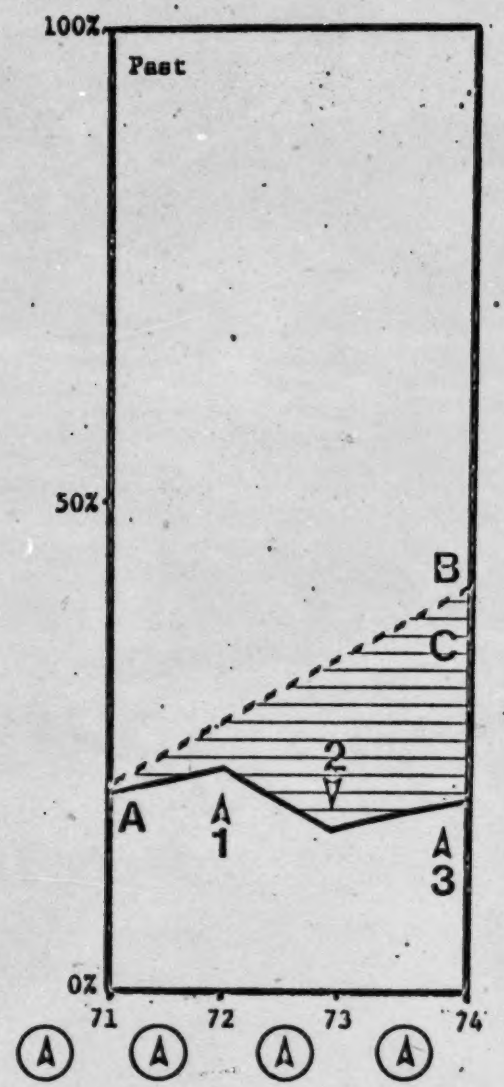
Furthermore, the model displays Project Baseline data on actual results of the VEA 1968 Amendments, data on the expected results of the Amendments, and the discrepancy between actual results and expected results.

Figure 2 shows actual Project Baseline data (see line A) for the percent of vocational education students who were black for the years 1971 through 1973 (with an estimate for 1974). It also shows the intended result of the VEA 1968 Amendments (see line B), according to one imaginary Congressman. And it shows the discrepancy between the actual results and the intended results (see area C). Moreover, Figure 2 lists three specific factors (all three are hypothetical) which might have caused changes in the actual percent of vocational education students who were black: the opening of new plants, massive company layoffs, and company rehiring.

Figure 3 shows that each individual variable to be analyzed will also be displayed on a set of panels representing general factors in future socio-economic and political environments which may influence vocational education processes and impacts during the years 1975 through 1985. The descriptions of these general factors are the backdrop for projecting what vocational education should accomplish in the future. Superimposed on those future panels are symbols for specific factors

Figure 2

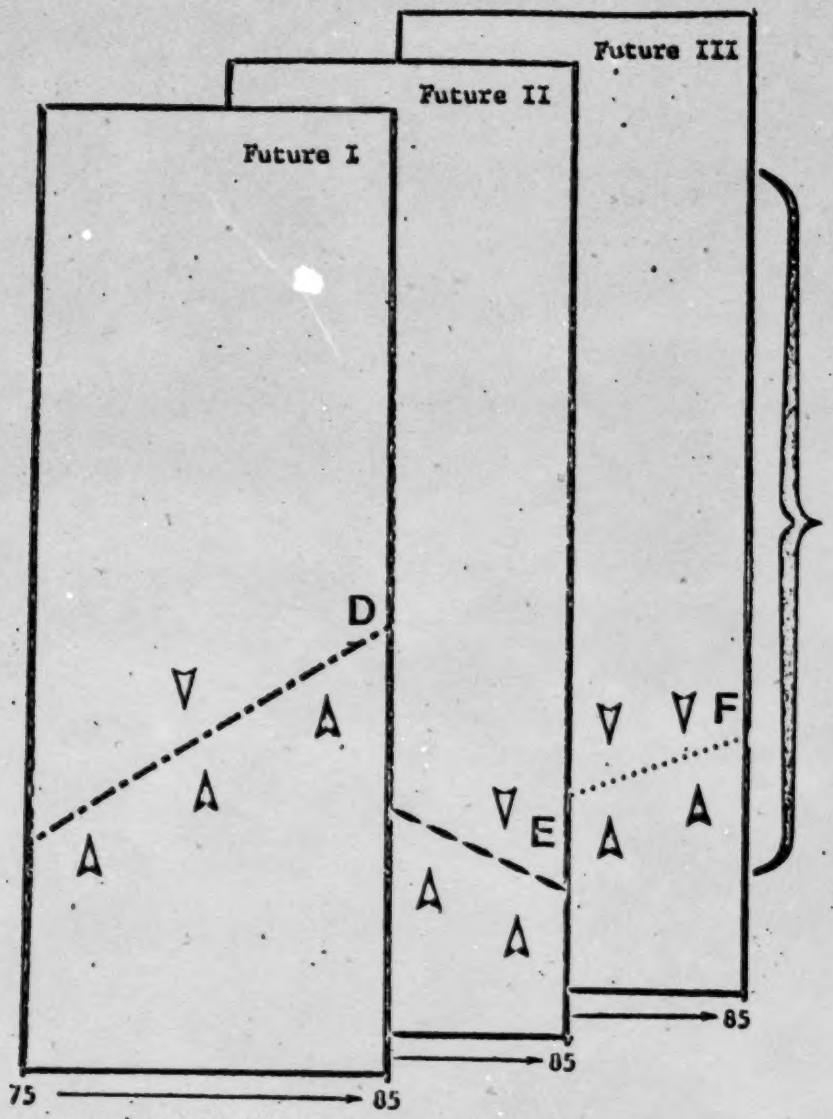
% VE STUDENTS WHO WERE BLACK



Line A - Actual Project Baseline data on % VE students who were black
Line B - Expected results of VEA 1968 Amendments on the % VE students who were black
Area C - Discrepancy between actual results and expected results
Point ▲ - Specific factors:
1. Major companies open new plants in urban centers
2. Massive company layoffs in urban centers
3. Company rehiring began in urban centers
Interventions (A) - VE acts, amendments, and appropriations

Figure 3

Expected (Desired) Results



General factors in future socio-economic and political environments which may influence vocational education processes and impacts

Line *D*
Line *E*
Line *F*
Expected (Desired) results of new vocational education legislation

Points A
Specific factors in future socio-economic and political environments which may influence vocational education processes and impacts

in the environment which have the potential power to influence vocational education. And threading their way into the future among those general and specific environmental factors are the expected (desired) results of new vocational education legislation yet to be enacted.

Figure 4 combines the history of the past with the prospects for the future. It displays actual black enrollment, expected (hypothetical) black enrollment, and the discrepancy between the two. According to this sketch, the VEA 1968 Amendments did not accomplish their intended result. The sketch offers hypothetical reasons for that failure in the form of specific factors which overpowered Congressional intent: a combination of decisions made by companies in the private sector. Figure 4 also displays on the future panels a set of hypothetical specific factors which may affect black enrollment between 1975 and 1985. Armed with Figure 4, an imaginary Congressman could draw his own projections of expected (desired) black enrollment in the future, knowing full well that outside environmental factors in the future may reinforce or defeat his expectations.

Figure 5 allows the same imaginary Congressman (or a committee of Congressmen or their advisors) to frame potential Federal legislation and to debate its probable effects, given what they already know about what has happened -- and why -- to black enrollment in the past. It may be that the Congressman can contrive laws powerful enough to intervene in the natural forces at work and produce the vocational education processes and impacts he seeks. The results of the study should assist him in doing exactly that.

Figure 4

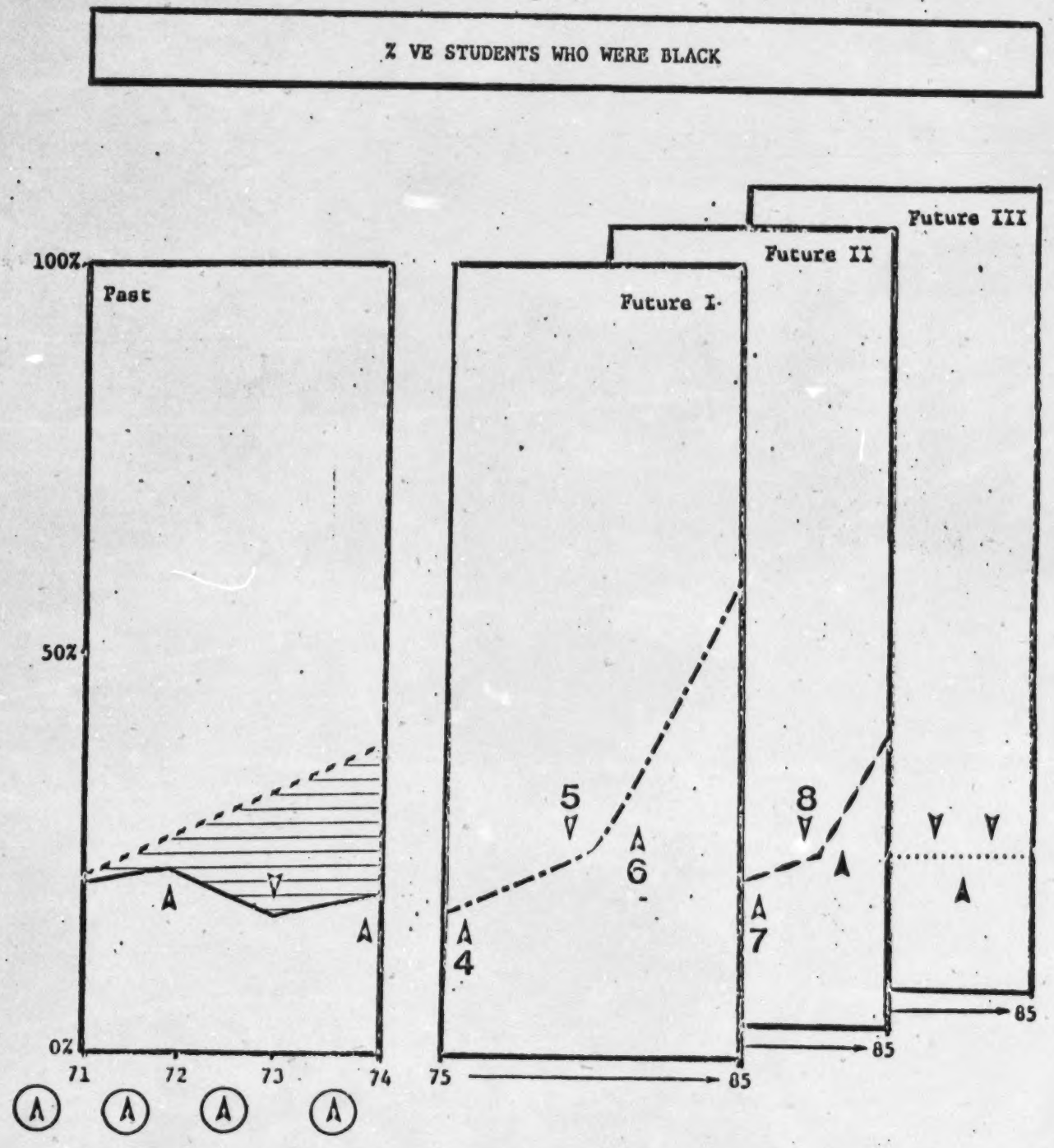
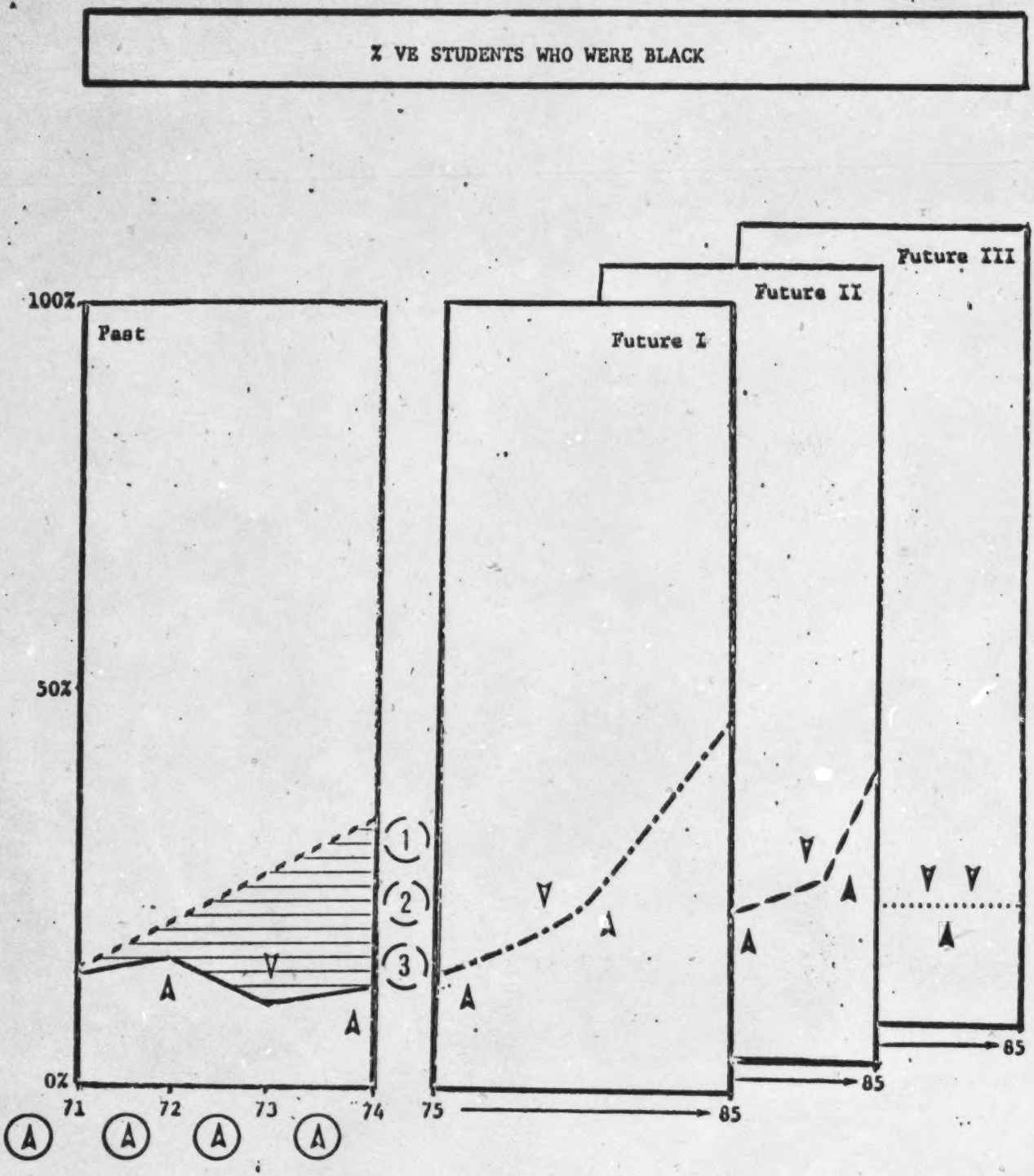

% VE STUDENTS WHO WERE BLACK
100%
50%
0%
Past
Future I
Future II
Future III
71
72
73
74
75
85
85
85
A
A
A

Figure 5



( ) Federal legislation:
1 - Double Federal funding for black students
2 - Mandate employing 50% black instructors
3 - Develop new instructional materials for black students

Summary of the Analytic Model. To summarize, the model has the following features:

- It provides for a description of the socio-economic and political trends and events thought likely to cause: 1) changes in vocational education itself and 2) changes in individuals and in the society brought about through vocational education.

- It provides for the display of statistics on the status and changes in vocational education and related social indicators for the years 1971 through 1974.

- It provides for the projection of statistics on vocational education and related social indicators for the years 1975 through 1985.

- It displays the discrepancies between expected results and actual results and will determine whether those discrepancies are either statistically or socially significant.

- It provides for identifying and displaying past and future significant trends or events powerful enough to influence the vocational education statistics and related social indicators being examined in the study.

- It provides for generating and displaying alternative legislative recommendations and for projecting their effects, given the various socio-economic and political factors at work in alternative visions of the future.

A FRAMEWORK FOR THINKING ABOUT VERD

Social Political Economic Professional/ Technical Environment	Vocational Education Environment	Federal R & D Policy Options
(1) →	(2) →	→ (3)
a) Current status:	a) Current status:	IF a) Control b) Funding c) Performers d) Continuity e) Standards f) Functions g) Program Area h) Population Served
b) Possible future events:	b) Possible future events:	THEN

Outcomes

Quality	Building Capacity	Utility	Political Support
(4)	(5)	(6)	(7)
a) Intellectual/scientific significance	a) VERD performers	a) Social significance b) Practitioners	a) Professions b) Governments c) Publics

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